forming an insulating layer on the semiconductor operating layer including the recess part; and

forming a gate electrode on the insulating layer at the recess part.

10. A process for producing a field effect transistor formed of a nitride based compound semiconductor, comprising the steps of:

forming a lower part semiconductor layer on a substrate having an electrical conductivity type of an n type or a p type, said lower part semiconductor layer having an electrical conductivity type the same as that of the substrate and a carrier density lower than that of the substrate;

laminating sequentially a carrier drifting layer having an electrical conductivity type opposite to that of the lower part semiconductor layer and a carrier supplying layer having an electrical conductivity type the same as that of the lower part semiconductor layer;

removing a part of the semiconductor operating layer to form a recess part including a side wall inclined relative to the semiconductor operating layer;

forming a source electrode on the semiconductor operating layer for connecting to the carrier drifting layer and the carrier supplying layer;

forming a drain electrode on a rear surface of the substrate;

forming a insulating layer over the semiconductor operating layer, the side wall, and the lower part semiconductor layer; and

forming a gate electrode on the gate insulating layer for covering the side wall.

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